NON-PUBLIC?: N
ACCESSION #: 9205040292
LICENSEE EVENT REPORT (LER)

FACILITY NAME: TURKEY POINT UNIT 4 PAGE: 1 OF 3

DOCKET NUMBER: 05000251

TITLE: Reactor Trip Due to Failure of Switch in Containment High Pressure Reactor Trip and SAfety Injection Initiation Logic.
EVENT DATE: 03/26/92 LER #: 92-004-00 REPORT DATE: 04/25/92

OTHER FACILITIES INVOLVED: TURKEY POINT UNIT 3 DOCKET NO: 05000250

OPERATING MODE: 1 POWER LEVEL: 28

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: James E. Knorr, Licensing Engineer TELEPHONE: (305) 246-6757

COMPONENT FAILURE DESCRIPTION:
CAUSE: X SYSTEM: JE COMPONENT: BLK MANUFACTURER: G080
REPORTABLE NPRDS: Y

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On March 26, 1992, unit 4 was operating at approximately 28% power. At 1015 hours, during the performance of Procedure OP 4004.4, "Containment Isolation Racks QR50 and QR51 Periodic Test," a reactor trip occurred. All systems responded as designed.

During the completion of OP 4004.4, the two out of three actuation logic was completed but the train 4B initiation signal was not blocked. As a result, a B train Safety Injection, and a B train Containment Phase A Isolation was initiated, followed by an automatic reactor trip.

The cause of the event was a worn test switch resulting in a contact "race" between the actuating contact set and the blocking contact set in the test switches. A contributing cause was a procedural inadequacy.

Corrective actions include switch replacement and a procedure revision.

END OF ABSTRACT

I. EVENT DESCRIPTION

On March 26, 1992, Unit 4 was operating at approximately 28% power in the process of returning to power after a power reduction. At 1015 hours, during the performance of Procedure OP 4004.4, "Containment Isolation Racks QR50 and QR51 Periodic Test," a reactor trip occurred. All systems responded as designed.

OP 4004.4 is used to complete the surveillance for the Containment High Pressure initiation of Safety Injection and Containment Phase A Isolation, Steps 1 through 4 of the OP 4004.4 test data sheet were performed without incident. Performance of item 1 in Step 5 of the procedure requires the depression of two switch buttons (TS-1 and TS-3 on QR-51) (EIIS - JE) (IEEE Component - BLK) to simulate the actuation of two out of three channels of High Containment Pressure while simultaneously blocking the initiation of Safety Injection and Containment Phase A Isolation. At 1015 hours during this process the two out of three actuation logic for train 4B was completed, but the train 4B signal was not blocked. As a result, a B train Safety Injection, and a B train Containment Phase A Isolation initiated and an automatic reactor trip occurred.

Step 5 of OP 4004.4 is the first step which tests the two out of three logic for the 10% High Containment Pressure initiation of Safety Injection and Phase A Containment Isolation. The step calls for the operator to depress two test push buttons "in pairs." Each pushbutton has two contact sets, one actuates the logic, while the other blocks the High Containment Pressure signal. For this step to be successful, the switch blocking contacts must be opened either prior to, or simultaneously with, the actuation contacts.

Testing in the instrument rack revealed that the actuating contacts on all three pushbutton switches (TS-1, TS-2, and TS-3) operated prior to the blocking contacts. Therefore, if the buttons were pushed at exactly the same time, it is possible that both channels would actuate prior to the blocking of one of the channels. The TS-1 switch showed a travel difference of 0.027 inches between the actuate and block contact sets. A new switch revealed no measurable travel difference between the contact sets. The TS-1 actuate contact set also demonstrated a tendency to stick in the open

position due to a sticking contact arm.

II. EVENT CAUSE

The cause of the event was a switch contact "race" between the actuating contact set and the blocking contact set of test switches TS-1 and TS-3. The outcome of the "race" may have been assured by the sticking actuating contact set on TS-1 which could have been stuck open since step 4 of OP 4004.4. Both the switch travel difference and sticking contact arm problems appear to be due to wear.

A contributing cause was the test directions in step 5 of OP 4004.4. Step 5 instructs the operator to push the buttons in "pairs." Had the step instructed the switches to be depressed in a "push first - hold - push second" manner, the block logic of the first channel would have operated prior to the actuation of the second channel of the two out of three actuation logic. Since at least one block logic would be completed, the trip would not have occurred.

III. EVENT SAFETY ANALYSIS

A reactor trip and subsequent shutdown after an inadvertent safety injection is within the design basis of Turkey Point. The switch failure which occurred in this event did not prevent the actuation of a reactor protection system or engineered safety feature due to the failure to block the Containment High Pressure signal. The surveillance testing of the Containment High Pressure signal was a surveillance required by Technical Specifications and is provided for in the design of the plant. The switch failure during the surveillance in this case resulted in a safety injection initiation and reactor trip. The reactor trip occurred after the initiation signal and the plant systems responded as designed with no actual injection into the vessel. Therefore, there was no compromise of the safety of plant personnel or the public as a result of this switch failure.

IV. CORRECTIVE ACTIONS

1. The test switches in instrument racks QR50 and QR51 for Unit 4 have been replaced.

2. Procedure OP 4004.4 has been revised to avoid simultaneous switch operation and to confirm switch contact status via status

lights and test indicating lights. Procedure 4004.4 has been successfully performed for racks QR50 and QR51 on Unit 4.

3. Walkdowns have been performed on other systems to identify other switch applications of this type. The applications found have been evaluated to determine if switch replacement is in order. No potential problems were found except for instrument racks QR50 and QR51 on Unit 3.

4. Switches on Unit 3 instrument racks QR50 and QR51 will be replaced during the next outage of sufficient duration or not later than October 30, 1992.

V. ADDITIONAL INFORMATION

These switches have previously been analyzed for failures in a 4kv circuit breaker application. That analysis concluded that 2000 cycles of the switch is a conservative estimate as to when the switch would need replacement. The switches in the QR50 and QR 51 application have had approximately 1000 cycles during their life.

Licensee Event Report 250-89-011 was written because of an inadvertent safety injection initiation signal.

The switch manufacturer is General Electric Corporation. The switch block model style number is CR2940.

This event was considered reportable in accordance with 10 CFR 50.73 (a) (2) (iv).

ATTACHMENT 1 TO 9205040292 PAGE 1 OF 1

P.O. Box 029100, Miami, FL, 33102-9100
FPL

APR 24 1992

L-92-115
10 CFR 50.73

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Re: Turkey Point Unit 4
Docket No. 50-251
Reportable Event: 92-004-00
Reactor Trip Due to Failure of Switch in Containment
High Pressure Reactor Trip and Safety Injection
Initiation Logic.

The attached Licensee Event Report 251-92-004-00 is being provided in accordance with 10 CFR 50.73 (a) (2) (iv).

If there are any questions please contact us.

Very truly yours,

T. F. Plunkett
Vice President
Turkey Point Nuclear

TFP/JEK/jk

enclosures

cc: Stewart D. Ebneter, Regional Administrator, Region II,
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Point Plant

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